

The diagram illustrates the construction of the pTJgfp plasmid. At the top, the pSE117 plasmid is shown with its origin of replication (ori), tetracycline resistance gene (Bla), EcoRI site, and umuDC gene. A PCR product containing the GFP gene, flanked by HindIII and EcoRI sites, is also shown. A large downward arrow indicates the transformation of the PCR product into the pSE117 plasmid. The resulting pTJgfp plasmid is shown at the bottom, containing the ori, Bla, umuDC, and GFP genes.

Fig 1

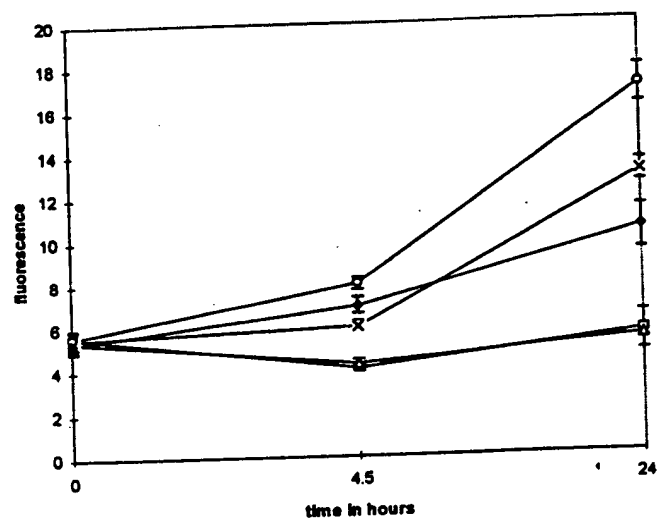
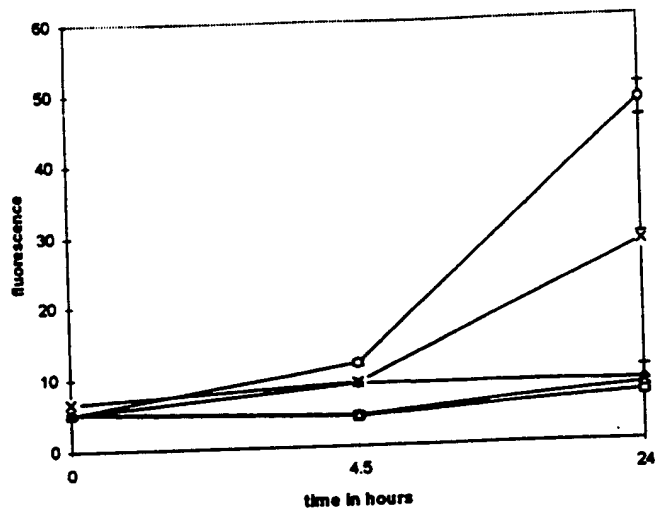
Time (hours)	Series 1 (○)	Series 2 (□)	Series 3 (■)	Series 4 (●)
0	6.5	6.5	6.5	6.5
4.5	8.5	7.5	7.5	6.0
24	19.5	15.5	10.0	8.5

Detailed description of Figure 1: The graph plots fluorescence against time in hours. The y-axis is labeled 'fluorescence' and ranges from 0 to 14 in increments of 2. The x-axis is labeled 'time in hours' and has markers at 0, 4.5, and 24. There are four data series, each represented by a line with square markers and vertical error bars. All series start at a fluorescence of approximately 5.5 at 0 hours. The top series increases steadily to about 12.5 at 24 hours. The second series from the top increases to about 10.5 at 24 hours. The third series (from the top) stays around 6 at 4.5 hours and then increases slightly to about 6.5 at 24 hours. The bottom series decreases to about 3.8 at 4.5 hours and then increases to about 6 at 24 hours.

Time (hours)	Series 1 (Top)	Series 2	Series 3	Series 4 (Bottom)
0	5.5	5.5	5.5	5.5
4.5	8.2	6.2	6.1	3.8
24	12.5	10.5	6.5	6.0

Fig 2b

Fig 3a



gfp-umu test

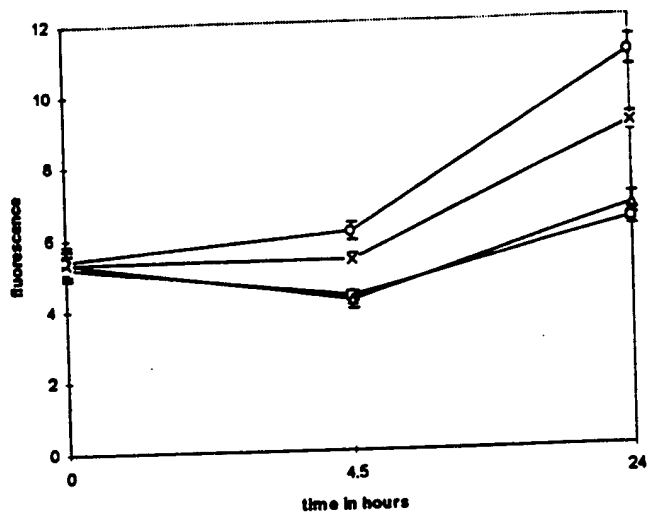


Fig 4a

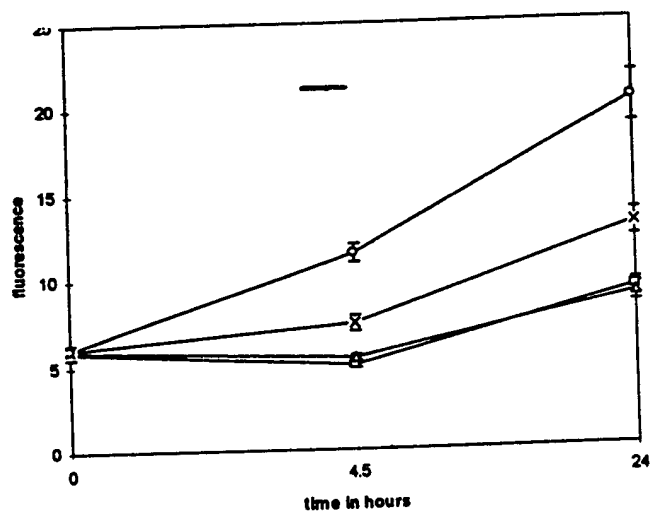


Fig 4b

Time (hours)	Solid Circles	Open Circles	Crosses	Solid Squares	Open Squares
0	5.5	5.5	5.5	5.5	5.5
4.5	9.2	7.4	6.8	6.2	5.8
24	10.3	7.8	7.0	6.0	5.5

Fig 5

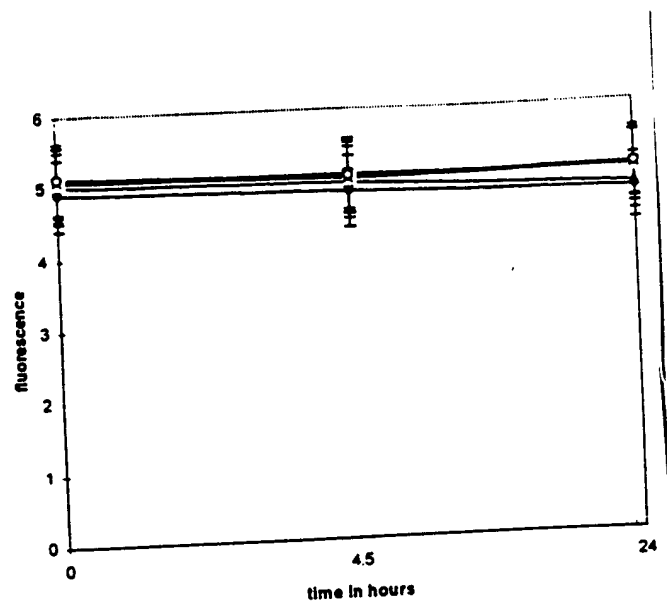


Fig 6

Figure 7 Histogram of mutant colony numbers from 40 parallel cultures following exposure to MNNG

0 $\mu\text{g/ml}$
 0.1 $\mu\text{g/ml}$
 3.5 $\mu\text{g/ml}$

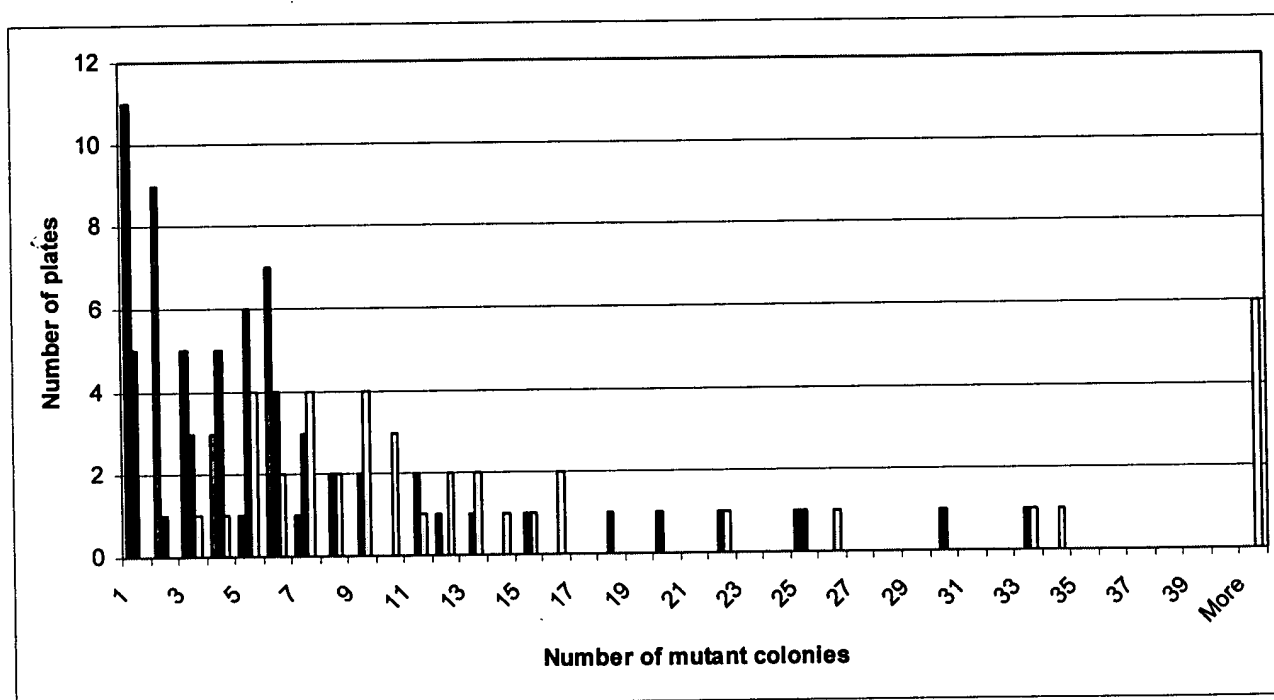


Figure 8 Histogram of mutant colony numbers from 37 parallel cultures following exposure to MMS

0 $\mu\text{g/ml}$
 13 $\mu\text{g/ml}$
 325 $\mu\text{g/ml}$

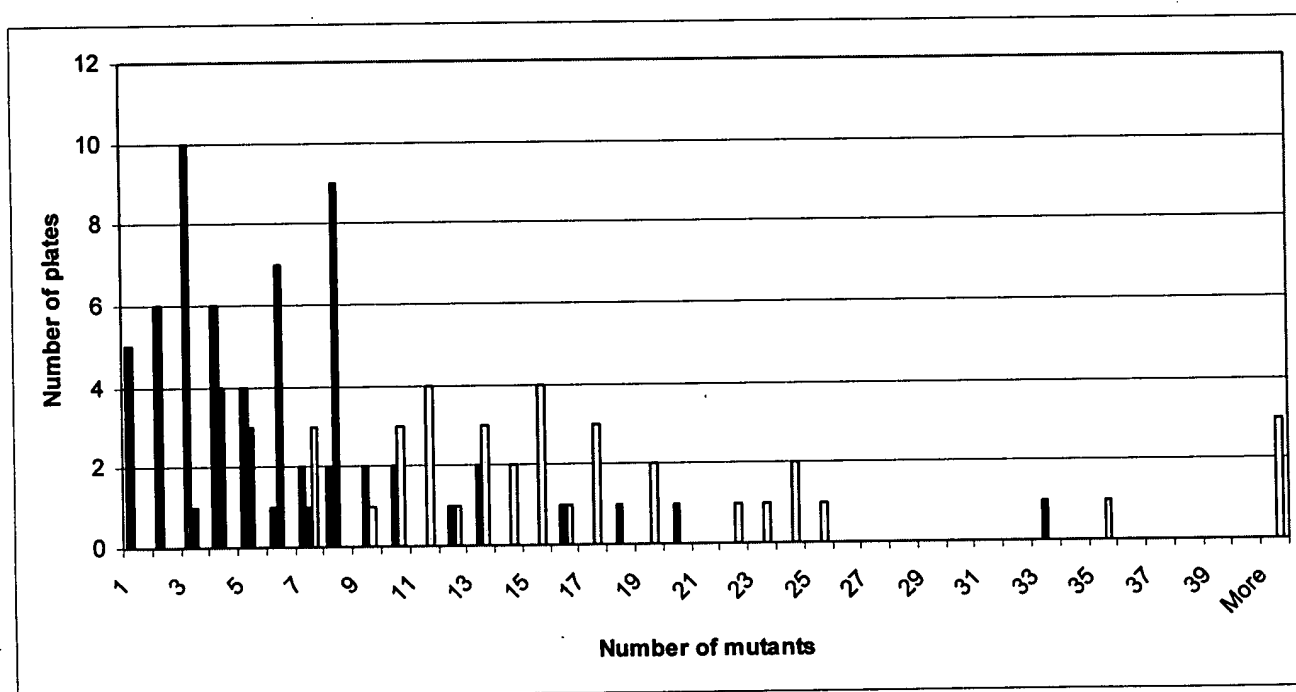
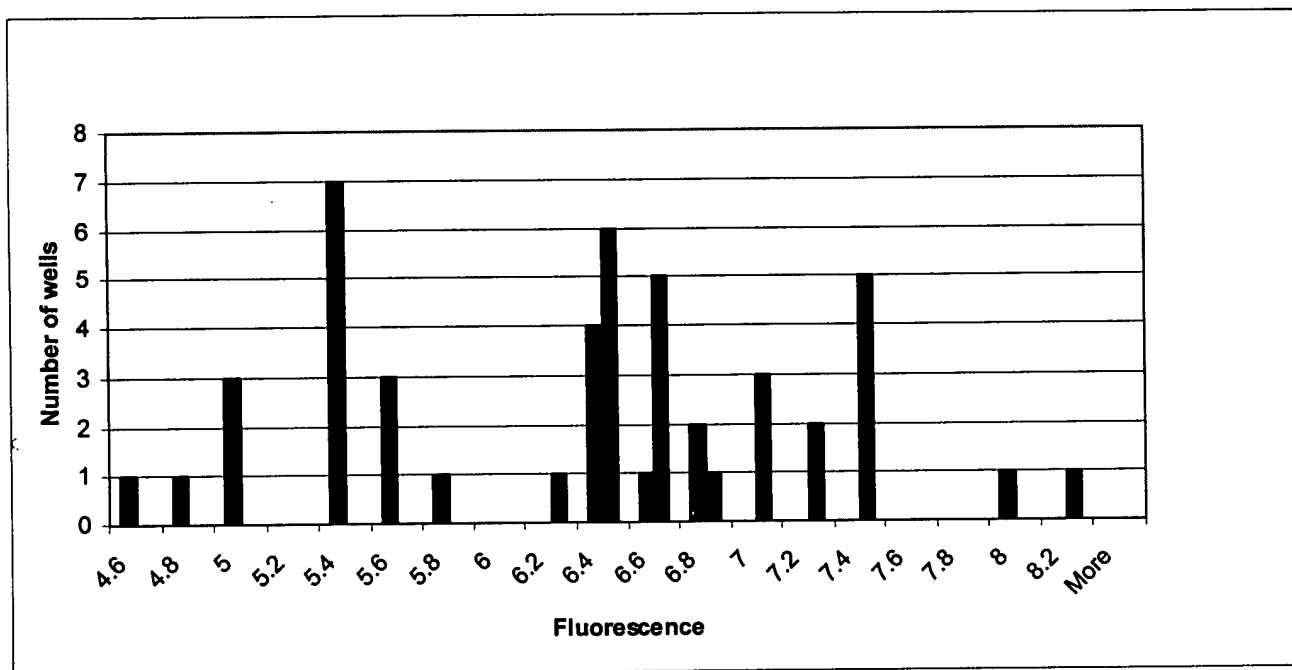


Figure 9 Histograms of mutant colony numbers and fluorescence emission from 24 parallel cultures following exposure to MNNG

0 $\mu\text{g/ml}$ 1.7 $\mu\text{g/ml}$

a.) Fluorescence emission values



b.) Revertant colony numbers

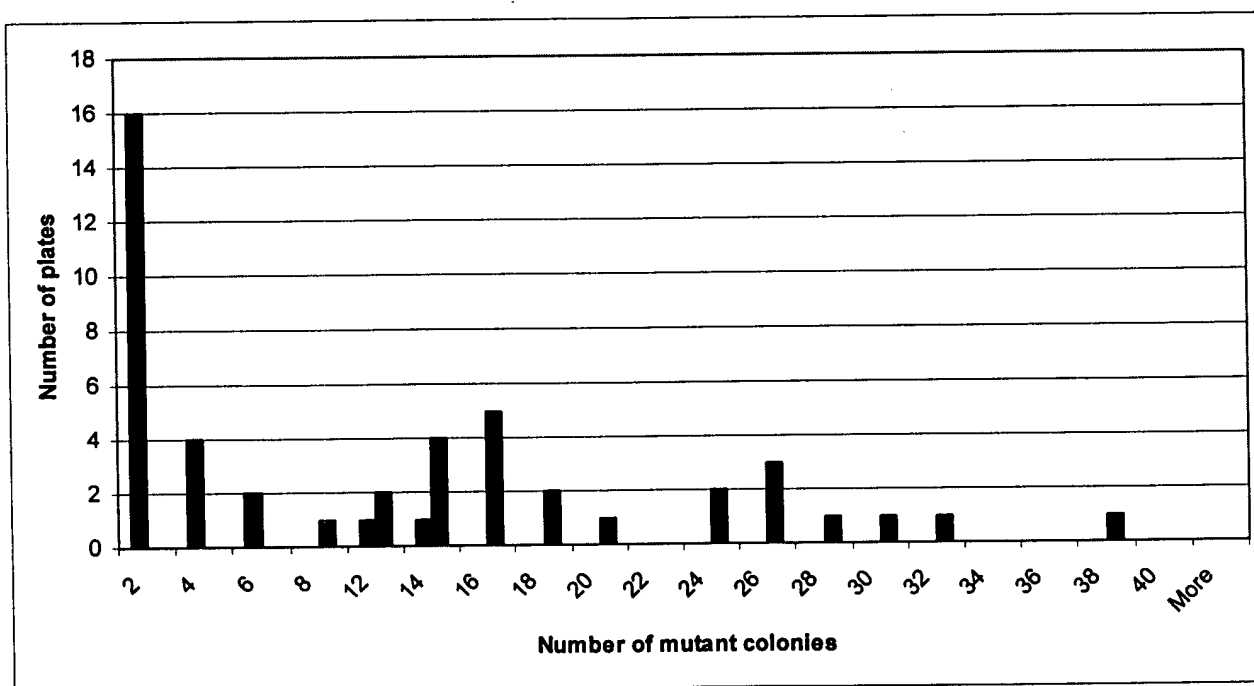





Figure 10 Histogram of fluorescence emission from 84 parallel cultures
following exposure to MMS

0 $\mu\text{g/ml}$ 
13 $\mu\text{g/ml}$ 
325 $\mu\text{g/ml}$ 

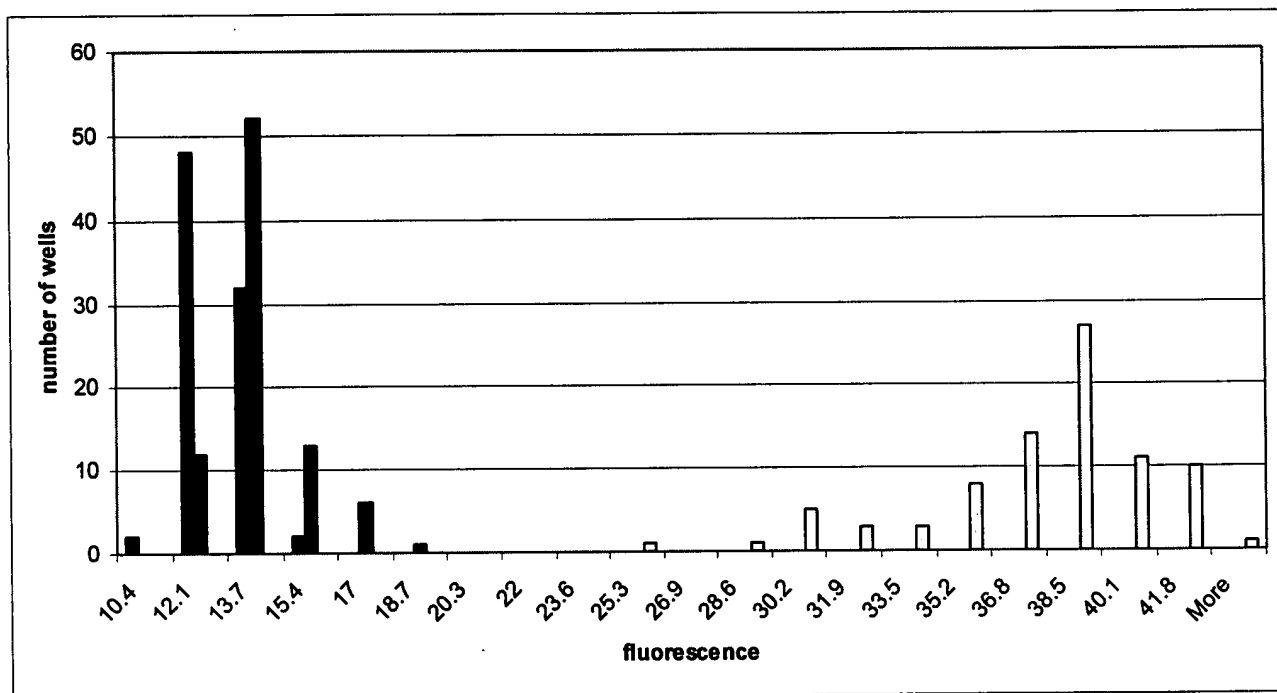





Figure 11 Histogram of fluorescence emission from 84 parallel cultures following exposure to MNNG

0 $\mu\text{g/ml}$ 
 0.1 $\mu\text{g/ml}$ 
 3.5 $\mu\text{g/ml}$ 

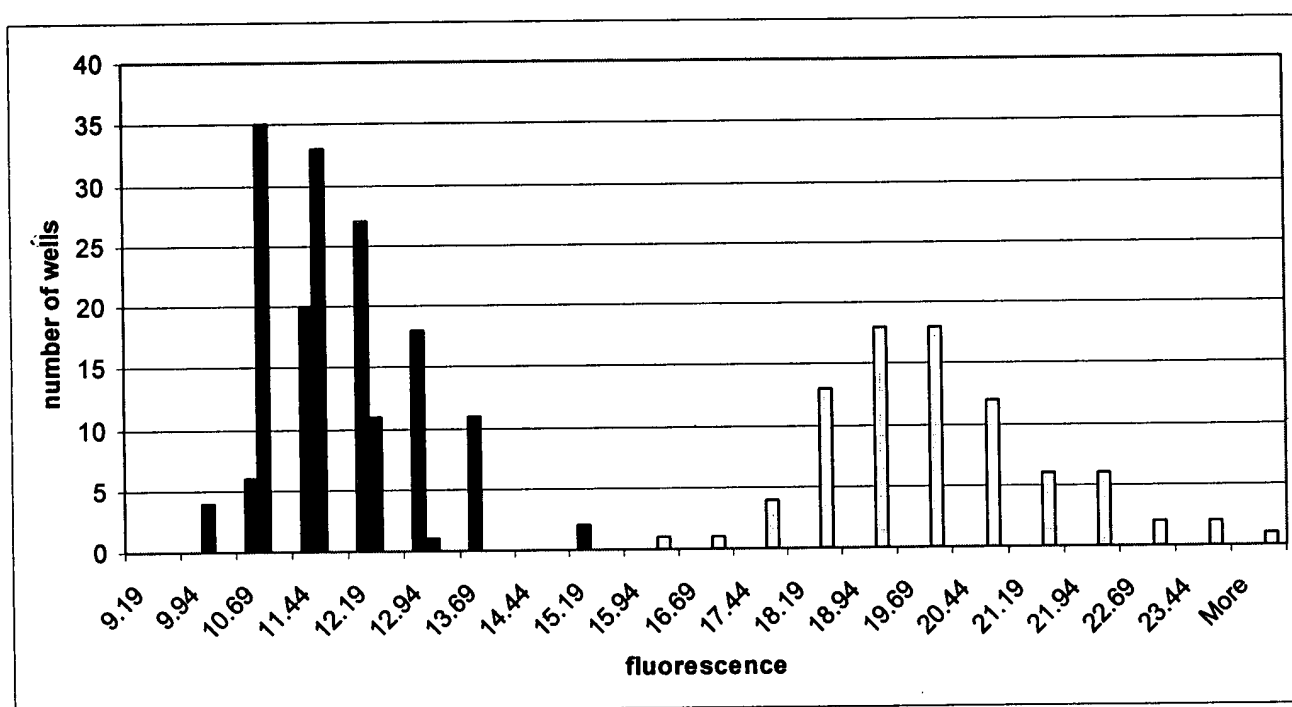


Figure 12 Histogram of fluorescence emission from 84 parallel cultures
following exposure to 254nm UVC

0 J/m² ■
1 J/m² ■
3 J/m² □

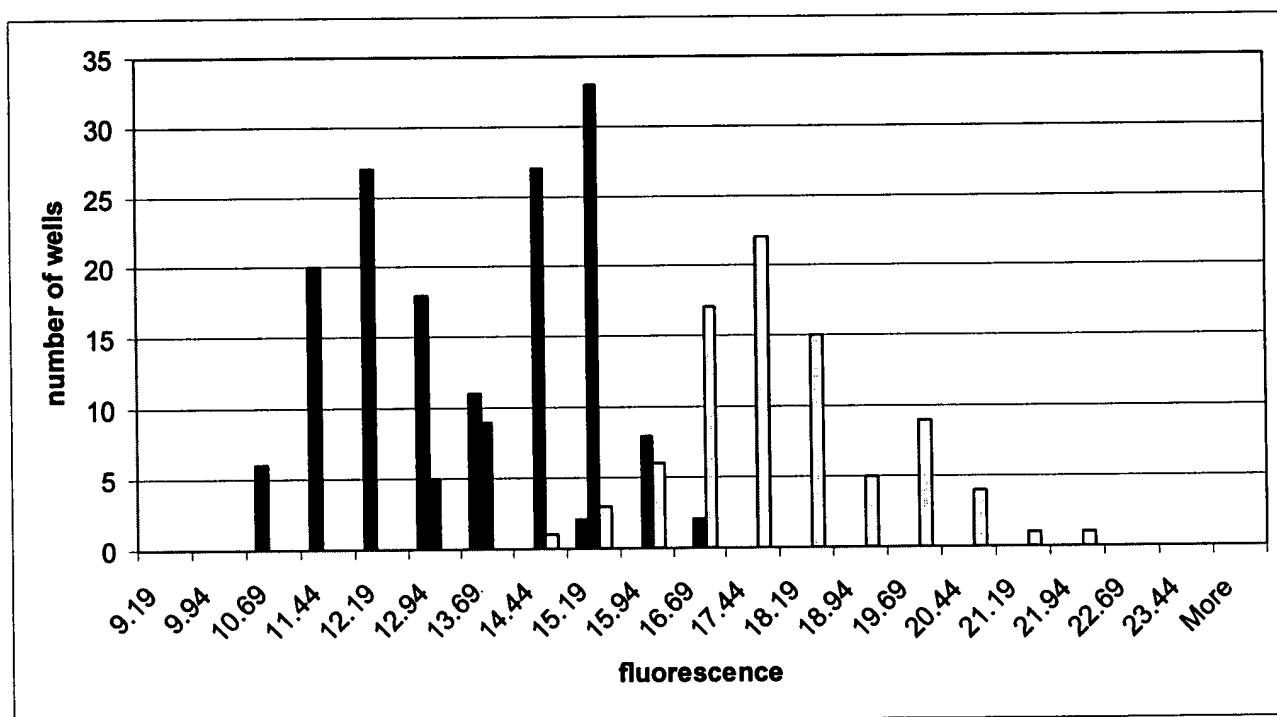


Figure 13

GenBank ACCESSION M13387

5 umuD protein

MLFIKPADLREIVTFPLFSDLVQCGFSPAADYVEQRIDLNQLL

10 IQHPSATYFVKASGDSMIDGGISDGDLLIVDSAITASHGDIVIAAVDGEFTVKKLQLR
PTVQLIPMNSAYSPITISSEDTLDVFGVVIHVVKAMR"

umuC protein

MFALCDVNAFYASCETVFRPDLWGKPVVLSNNDGCVIARNAEA

15 KALGVKMGPWFKQKDLFRRCGVVCFSSNYELYADMSNRVMSTLEELSPRVEIYSI
DE

20 AFCDLTGVRNCRDLTDFGREIRATVLQRTHTLVGVGIAQTKTLAKLANHAAKKWQR
QT

GGVVDLSNLERQRKLMSALPVDDVWGIGRRISKKLDAMGIKTVLADTDIRFIRKH
F

25 NVVLERTVRELRGEPCLQLEEFAPTKQEIICSRSFGERITDYPSMRQAICSYAARAAE

KLRSEHQYCRFISTFIKTSPFALNEPYYGNSASVKLLTPTQDSRDIINAATRS�DAIW

30 QAGHRYQKAGVMLGDDFSQGVAQLNLFDDNAPRPGSEQLMTVMDTLNAKEGRGT
LYFA

GQGIQQQWQMKRAMLSPRYTTRSSDLLRVK

The Gene

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35 61 caagaacaga ctactgtata taaaaacagt ataactcag gcagattatt atgttggtta
121 tcaagcctgc ggatctccgc gaaattgtga ctttccgct atttagcgat ctgttcagt
181 gtggctttcc ttcaccggca gcagattacg ttgaacagcg catcgatctg aatcaactgt
241 tgatccagca tccacgcgcg acttacttcg tcaaagcaag tggatgattct atgattgatg
301 gtggaattag tgacggatgat ttactgattg tcgatagcgc tattaccgcc agccatgggtg
40 361 atattgtcat cgctgctgtt gacggcgagt ttacggtgaa aaaattgcaa ctacgcccga
421 cggtacagct tattcccatg aacagcgcgt actcgcccat taccatcagt agtgaagata
481 cgctggatgt ctttggtgtg gtgatccacg tcgttaaggc gatgcgctga tgtttgccct
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661 aaaggcgctt ggcgttaaaa tggcgatcc ctggtcaaa caaaaagatc tgttcgtc
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 1741 agccatgctt tcaccacgtt atacaacgcg aagttctgat ttactgaggg tcaaataaat
 20 1801 atagcggcag gaaaaaa

Fig 13, contd

Figure 14

gfp mut2

5 protein

MSKGEELFTGVVPILVELDGDVNGHKFSVSGEGEGDATYGKLTCLKFICTTGKLPVPW
PTLVTTFA YGLQCFARYPDHMKQHDFKFSAMPEGYVQERTIFFKDDGNYKTRAEVK
FEGDTLVNRIELKGIDFKEDGNILGHKLEYNNSHNVYIMADKQKNGIKVNFKIRHNI
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10 GITHGMDELYK

gene

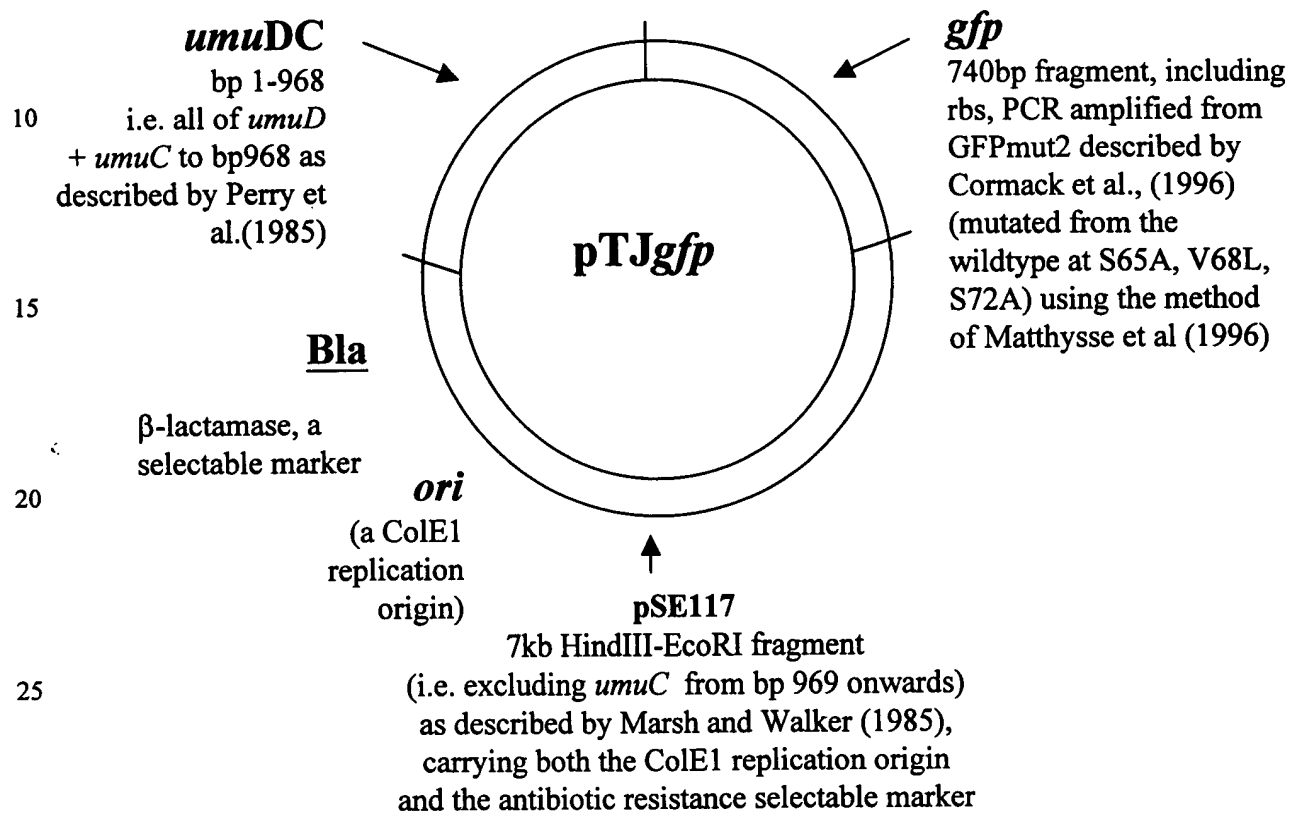
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601 agacaacat tactatcca ctcaatctgc cttatccaaa gatccaaacg aaaagagaga
661 ccacatggtc ttgttagaat ttgttactgc tgctgttatt acctatgga tggatgaatt
25 721 gtacaaataa ctgcag

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Figure 15

The structure and sequence of the construct

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